U.S. Department
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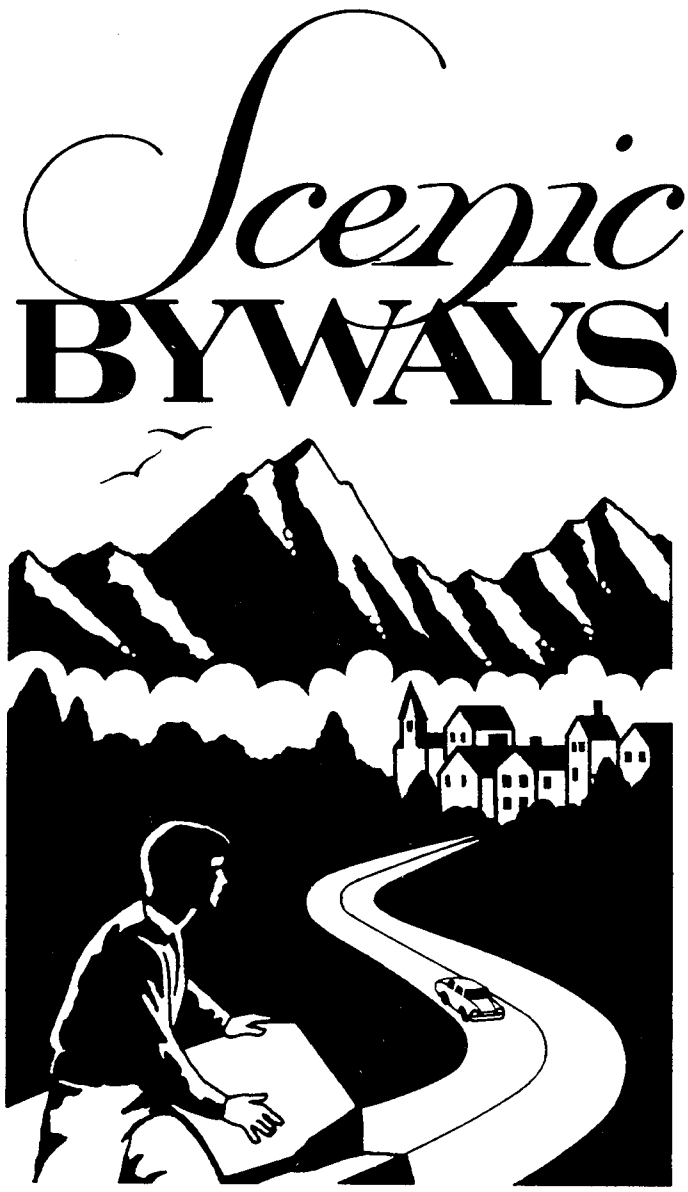
**Federal Highway
Administration**

Final Case Study for the National Scenic Byways Study

The Economic Impact of Travel on Scenic Byways



September 1990

NOTICE

Final Case Study

for the

National Scenic Byways Study

THE ECONOMIC IMPACT of TRAVEL on SCENIC BYWAYS

SEPTEMBER 1990

Prepared for
The Federal Highway Administration

Submitted by
The U.S. Travel Data Center

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Scenic roads and byways are designated as such and valued because of their unique aesthetic, cultural, or historical significance. However, scenic byways also make important economic contributions to the states and local regions where they are located. The U.S. Travel Data Center employed two different methods to estimate the economic impact that travelers on scenic byways make to state and local economies.

Scenic byways were mapped in nine states and across the counties containing scenic byways. Counties containing scenic byways were "screened" to eliminate the economic effects of urban areas, airports, major resorts, and other major roads such as interstate highways. Within the nine states, thirty-three scenic byways located in forty-five counties were available for analysis. These were generally the most rural counties and scenic byways because of the screening process. The economic impact of travelers for each of the screened counties was obtained from the U.S. Travel Data Center's Travel Economic Impact Model, and these county estimates were proportioned to each scenic byway on the basis of highway miles within the county. Estimates were developed for the years 1988 and 1986.

In 1988 it is estimated that U.S. travelers spent 294 billion dollars on all domestic travel activities. For the 1600 scenic byway miles analyzed, it is estimated that travelers spent almost 48 million dollars in 1988. These expenditures generated nearly 9 million dollars in payroll income and 920 jobs. In addition, over 2 million dollars were generated in state government tax receipts and almost 500 thousand dollars were generated in local government receipts. If these estimates are accurate and could be applied to the 34,624 miles of designated scenic byways in the 1990 national scenic byways study by FHwA, travel-generated spending would have been approximately one billion dollars.

Five scenic byways were selected as cases for study. These include the Blue Ridge Parkway (9 Virginia counties), the Natchez Trace Parkway (2 Tennessee counties), U.S. 322 (2 Pennsylvania counties), S.R. 404 (2 Maryland counties), and S.R. 11 (1 South Carolina county). An inventory of the commercial establishments was compiled for each of these cases, and per unit traveler generated sales were estimated from the total sales for each kind of establishment for the years 1988 and 1986. For the approximately 382 scenic byway miles, traveler generated spending is estimated to be over 13 million dollars. This spending generated over 2.5 million dollars in payroll income and 308 jobs. Additionally, state governments received over 500 thousand dollars in revenue and local governments received almost 10 thousand dollars. If the estimates from only these five cases could be applied to the total 34,624 miles of designated scenic byways in the 1990 national scenic byways study by FHwA, travel-generated spending in 1988 would have totaled almost 1.2 billion dollars.

This study was conducted by the U.S. Travel Data Center for the Federal Highway Administration pursuant to Purchase Order number DTFH61-90-p-00576. The study provides estimates of travel spending on selected Scenic Byways in nine states, and employment, wage and salary income, state tax revenue and local tax revenue generated by this spending.

Special thanks are due to Mr. Kevin E. Heanue, Director of Office of Planning and Mr. George E. Schoener, Chief of Project Analysis, Federal Highway Administration for their support and assistance on this study.

US Travel Data Center
Washington, D.C.
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The purpose of this study is to provide estimates of the 1988 and 1986 economic impacts of travel and tourism on scenic byways. There is not a single agreed upon definition for a scenic byway, but the Federal Highway Administration (FHwA) uses the following general description in their Scenic Byways publication. "A scenic road or byway has roadsides or corridors of aesthetic, cultural, or historic value. An essential part of this road is its scenic corridor. The corridor may contain outstanding scenic vistas, unusual geologic formations, dramatic urban scenes, scientific features, or other elements--all providing enjoyment for the highway traveler." Scenic byways for study were selected from the list provided by the American Automobile Association and federal, state, and local highways and roads identified as scenic found in FHwA's Scenic Byway publication.

The estimates of travel-generated impacts on scenic byways are derived through the use of the County Travel Economic Impact Model, a computerized economic model producing estimates of travel spending at the county level, and the employment, wage and salary (payroll) income, state tax revenue and local tax revenue generated by this spending. Two approaches are employed to derive the economic impacts of travelers on scenic byways from the economic impacts on counties produced by the County Travel Economic Impact Model. These two approaches are described in the "Travel Impact on Scenic Byways" and the "Travel Impact on Five Selected Cases" sections of this report.

The County Travel Economic Impact Model is an extension of the US Travel Data Center's Travel Economic Impact Model (TEIM) initially developed in 1975 for the U.S. Department of the Interior to indicate the economic value of travel and tourism to states and counties. The original TEIM was revised substantially based upon the U.S. Census Bureau's 1977 National Travel Survey and 1977 census of Service Industries and Census of Retail Trade. In 1986, the model's time series was adjusted to fit business receipts and payroll data available for each state from the 1982 Census of Service Industries and Census of Retail Trade.

The following estimates of travel's economic impact on scenic byways during 1988 and 1986 are based upon the most recent version of the TEIM and data available from the U.S. Census Bureau and other sources. These estimates are not strictly comparable to those published for 1981 and earlier years.

The TEIM is based upon national travel surveys conducted by the U.S. Bureau of the Census and the U.S. Travel Data Center, and expenditure data developed by the Bureau of the Census, the Data Center, various federal agencies and national travel organizations each year. A description of the TEIM and the county impact model

is provided in: Frechtling, Douglas C., et. al., Travel Economic Impact Model: Final Economic Analysis Methodology, US Travel Data Center, Washington, D.C., 1975, 108 pp, and subsequent revisions of the TEIM.

The estimates provided in this report represent expenditures by U.S. residents traveling on scenic byways in nine selected states. This includes both state residents and out-of-state visitors traveling away from home overnight, or on day trips to places 100 miles or more away from home during 1988 and 1986. Travel commuting to and from work; travel by those operating an airplane, bus, truck, train or other form of common carrier transportation; military travel on active duty; travel by students away at school; and travel by foreign visitors, are all excluded from the model. Also the payroll and employment estimates represent impact generated in the private sector and exclude public-supported payroll and employment.

The purpose of this study is to estimate the economic impacts of travelers on selected scenic byways during the years 1988 and 1986. Estimates of scenic byways' economic impacts in 1988 and 1986 are best examined in the context of the national trends for those years, and 1989 the most recent year for which national data are available. The U.S. economy continued to expand in 1988 for the sixth consecutive year. As indicated in Table 1, growth in the broad measures of business activity continued to be strong during 1988. Despite the age of the current expansion, the economy picked up speed in 1988 and boosted business activity, income, employment, and prices.

Table 1: Overall U.S. Economic Developments
(percent change from previous year)

Sector	1989	1988	1986
Nominal gross national product	7.2%	7.9%	5.6%
Real gross national product	3.0	4.4	2.8
Personal income	8.9	7.6	6.2
Corporate profits after tax	-4.7	18.9	1.6
Consumer price index	4.7	4.1	1.9
Payroll employment	2.8	3.3	2.1

Source: U.S. Dept. of Commerce, U.S. Dept. of Labor

The nation's total output of goods and services (gross national product) grew faster in 1988, in both nominal terms (i.e., current dollars) and in real terms (i.e., 1982 dollars). Corporate profits after tax surged again in 1988, indicating businesses were again in a favorable position to afford travel.

Employment growth quickened in 1988 as the United States economy created 3.4 million new jobs, the largest increase since 1984. This was approximately 710,000 more jobs than were added in 1987, allowing unemployment rates to drop to their lowest levels in more than a decade. Even though consumer prices accelerated, personal income rose more than three percentage points faster and real purchasing power increased considerably.

Overall, economic conditions were very favorable for travel in 1988 and 1986. Economic growth continued into 1989, albeit this expansion was slower than 1988, and conditions remained conducive for travel growth.

In response to the continuing rise in overall economic activity, travel away from home rose in 1989 for the fifth

consecutive year. As indicated in Table 2, United States resident travel away from home as measured by the Data Center's National Travel Survey in "person-trips" (one person on a trip to a place 100 miles or more away from home) reached a new record high. Total person-trips for all purposes surpassed 1.25 billion, the highest level ever recorded by the survey. This represents a 2.2 percent increase over 1988. However, the number of person-nights away from home (nights spent on person-trips) decreased in 1989 from the 1988 level. In 1988, the average number of person-nights away from home was 4.2 nights, and in 1989 the average fell to 4.0 nights.

Table 2: U.S. Travel Away from Home
(in millions)

Measures of U.S. Travel	1989	1988	1986
Person-trips away from home*	1,260.1	1,232.5	1,121.6
Person-nights away from home**	5,040.4	5,176.5	4,374.2
Person-trips by automobile***	1,008.0	776.4	672.9
Person-trips by automobile for pleasure purposes***	785.0	380.6	298.6
Person-nights away from home by automobile***	3,628.8	2,950.3	3,095.3

* one person on a trip 100 miles or more from home
** nights spent on person-trips
*** includes automobiles, recreational vehicles, motorcoaches, and automobile and truck rentals
Source: US Travel Data Center

Despite the moderate growth in person-trips and the decrease in average nights away from home, U.S. traveler-generated expenditures on domestic travel are expected to exceed $300 billion in 1989. Nineteen eighty-eight domestic travel expenditures by U.S. residents grew more slowly than during the previous year, reaching nearly $294 billion. In nominal terms, the 6.7 percent advance in travel spending fell short of the 7.9 percent rise in GNP in 1988. However, travel prices rose at approximately the same rate as the average cost of all items consumers buy, as measured by the Consumer Price Index.

More restrained growth in spending during 1988 also reduced the rate of increase in travel-generated payroll income. In addition, travel-related businesses did not add to their job rolls as rapidly as expenditures increased, so payroll declined as a proportion of business receipts. Payroll income generated by U.S. domestic travel expenditures totaled nearly $65 billion for the year.

This payroll directly supported 5.1 million jobs, a 0.5 percent increase from 1987. The average payroll per job rose in 1988, so each dollar of spending produced less employment. However, travel-generated employment increased at a much slower rate than total U.S. jobs which grew at 3.3 percent.

The recent trends in travel behavior have some important implications for the economic impact of travel on scenic byways. As indicated in Table 2, person-trips by automobiles, recreational vehicles, and motorcoaches rose 30 percent in 1989 over 1988. In 1988, person-trips by automobile, recreational vehicles, and motorcoaches constituted 63 percent of the total person-trips taken. Person-trips by these types of ground transportation rose to 80 percent of the total person-trips in 1989. Person-trips for "pleasure" or non-business reasons by automobiles, recreational vehicles, and motorcoaches in 1989 more than doubled the 1988 figures. Additionally, the average number of person-nights away from home for these person-trips has been declining. In 1986, the average person-nights away from home by automobiles, recreational vehicles, and motorcoaches was 4.6 nights. Average person-nights away from home declined to 3.8 nights in 1988, and further declined to 3.6 nights in 1989.

These trends indicate that Americans are increasing their travel by automobiles, recreational vehicles, and motorcoaches, and pleasure travel is the reason for this increased travel. Moreover, it is apparent that this increased travel is for more weekend and day trips than in previous years. These trends are likely to continue into the 1990s given the rise in dual-income families with vacation scheduling conflicts, and the recent trends which show declines for the traditional two week family vacation.

In summary, the nation's economic expansion completed its seventh year in 1989, increasing from the high levels achieved in 1988. U.S. residents boosted their trips, but nights away from home fell slightly and travel expenditures are expected to rise more slowly than the year before.

This section of the study attempts to provide general estimates of traveler-generated economic impacts for as many scenic byways as data are available. Estimates of traveler-generated economic impacts by Americans on selected roads designated as scenic byways were derived for three parkways, twenty U.S. highways, nine state roads, and one county road located in forty-five counties within nine states. Table 3 lists the state and county locations, and highway miles for the scenic byways selected for study.

Methodology

Scenic byways were selected within nine of eleven states for which data on traveler-generated economic impacts on counties were available for the years 1988 and 1986. The economic impact of travel on counties were generated from the county component of U.S. Travel Data Center's Travel Economic Impact Model. We attempted to select states from different regions of the country and different types of roads designated as scenic byways. However, it is difficult to segregate the portion of county travel-generated economic impact that is attributable to the scenic byway(s) located in the county versus other destinations in the county. For example, George Washington Parkway is located in the Virginia Counties of Arlington and Alexandria, but there are numerous other travel-related activities occurring in these counties which in total have a much greater economic impact than George Washington Parkway. Therefore, these other impacts not associated with scenic byways need to be "screened" out as best as possible.

All of the scenic byways (listed in the FHwA Scenic Byways, July, 1988 publication) located in the selected states were mapped by each county location within the state. Then, all counties with scenic byways in these states were examined, and those counties meeting the following criteria were selected for study.

1. Counties without urban areas.

2. Counties without commercial airports.

3. Counties with the least interstate highways or other major roads, except those with scenic byway designation.

4. Counties without major resorts, unless these are located on a scenic byway.

These counties are the most rural counties, but the estimates of traveler-generated economic impact for these counties are more likely to be attributed to the presence of a scenic byway than would be possible in more urbanized counties. By eliminating the more urbanized counties, the spending impacts of travel in counties

T A B L E 3: LOCATION AND HIGHWAY MILES OF SELECTED SCENIC BYWAYS

STATE	COUNTY	SCENIC BYWAY	HIGHWAY MILES
VIRGINIA			
	FLOYD	BLUE RIDGE PARKWAY	39
	PATRICK	BLUE RIDGE PARKWAY	16
	FRANKLIN	BLUE RIDGE PARKWAY	12
	BEDFORD	BLUE RIDGE PARKWAY	37
	AMHERST	BLUE RIDGE PARKWAY	21
	NELSON	BLUE RIDGE PARKWAY	18
	MADISON	BLUE RIDGE PARKWAY	20
	PAGE	BLUE RIDGE PARKWAY	23
	RAPPAHANNOCK	BLUE RIDGE PARKWAY	23
MINNESOTA			
	BECKER	U.S. 10	27
	WADENA	U.S. 10	13
	TODD	U.S. 10	12
	HUBBARD	U.S. 71	55
	LAKE	U.S. 61	53
	COOK	U.S. 61	80
	WABASHA	U.S. 61	31
	MILLE LACS	S.R. 18	6
	AITKIN	S.R. 18	40
OKLAHOMA			
	CADDO	S.R. 152 WITH U.S. 281	27
	PUSHMATAHA	U.S. 271	49
	LE FLORE	U.S. 59 WITH U.S. 270, S.R. 1, U.S. 259	153
	MCCURTAIN	U.S. 259	74
	CHEROKEE	S.R. 10	36
LOUISIANA			
	ST. JAMES	S.R. 18	19
	ST. MARY	U.S. 90	41
	SABINE	S.R. 191	61
PENNSYLVANIA			
	JUNIATA	U.S. 322	21
	MIFFLIN	U.S. 322	18
MARYLAND			
	TALBOT	S.R. 404	6
	CAROLINE	S.R. 404	17
SOUTH CAROLINA			
	OCONEE	S.R. 11	37
	GEORGETOWN	U.S. 701	22
TENNESSEE			
	LEWIS	NATCHEZ TRACE PARKWAY	23
	WAYNE	NATCHEZ TRACE PARKWAY	29
	POLK	U.S. 64	26
	COCKE	U.S. 25 WITH U.S. 70	7
	CLAIRBORNE	U.S. 25E	21
	STEWART	THE TRACE	14
TEXAS			
	CULBERSON	U.S. 180 WITH U.S. 62	33
	JEFF DAVIS	S.R. 166	43
	PRESIDIO	C.R. 170	98
	VAL VERDE	U.S. 90	86
	NACOGDOCHES	U.S. 59	34
	BLANCO	U.S. 281	39
	BURNET	U.S. 281	40
T O T A L			1600

SOURCE: U.S. TRAVEL DATA CENTER, STATE DEPARTMENTS OF TRANSPORTION

focusses on automobiles, buses, lodging (hotel/motel and campgrounds), and incidental retail, amusement and recreation, and foodservices.

Estimates of travel-generated economic impacts on selected scenic byways were developed based upon the number of scenic byway miles and other highway miles in each county. The total economic impacts of travel for each county are proportioned to scenic byways by the ratio of scenic byways' highway miles to the total of highway miles in each county for the years 1988 and 1986.

Unfortunately, time limitations and lack of resources did not allow for primary data collection or surveys of these scenic byways, and therefore the above method was chosen in an attempt to produce rough estimates of economic impacts on scenic byways. This methodology may overestimate or underestimate the economic impacts because we are assuming that all roads in each of these more rural counties have equal economic impact per mile. In counties with scenic byways that have less than the average travel related commercial activity for those counties highways, this method will overestimate the economic impact of scenic byways. Conversely, economic impacts of scenic byways will be underestimated in counties where scenic byways have a higher than average level of travel-generated spending compared to other highways in the county.

Economic Impacts

As shown in the figures in Table 4, estimates of travel-generated spending on scenic byways within the selected counties vary greatly. For example, it is estimated that traveler-generated spending on the Blue Ridge Parkway in Page County, Virginia during 1988 was over $10.8 million or $471.5 thousand per highway mile. Alternately, traveler spending is estimated to be $34.5 thousand or $1.8 thousand per highway mile on State Road 18 in St. James Parish, Louisiana. It is not clear how much of this variance is related to the caveats discussed above, and what differences might be attributable to the types of scenic byways and its location. As expected, many of the percentages for increases and decreases generally follow the total county spending patterns.

Overall, it is estimated that U.S. resident travelers spent $47.6 million on transportation, lodging, food, entertainment, recreation, and incidentals during 1988 while traveling away from home overnight, or on day trips 100 miles or more away from home, on the 1600 miles of scenic byways we examined. This represents an overall increase of 10.7 percent from the estimated $43.1 million spent during 1986. On average, it is estimated that during 1988 travel-generated spending on the scenic byways examined was $29.8 thousand per highway mile, and spending in 1986 was $26.9 thousand per highway mile.

Payroll income (wages and salaries) paid by travel-related

T A B L E 4: TRAVEL GENERATED EXPENDITURES BY SCENIC BYWAYS

STATE	COUNTY	1988 ($ THOUSANDS)	1986 ($ THOUSANDS)	PERCENT CHANGE
VIRGINIA				
	FLOYD	1,968.1	1,605.6	22.6%
	PATRICK	695.3	639.2	8.8%
	FRANKLIN	946.4	814.7	16.2%
	BEDFORD	1,826.4	1,572.5	16.1%
	AMHERST	1,245.3	1,107.8	12.4%
	NELSON	8,932.2	7,357.1	21.4%
	MADISON	1,930.8	1,511.9	27.7%
	PAGE	10,845.6	9,284.0	16.8%
	RAPPAHANNOCK	1,696.3	1,378.7	23.0%
MINNESOTA				
	BECKER	914.2	761.0	20.1%
	WADENA	103.8	82.4	25.9%
	TODD	113.6	96.4	17.9%
	HUBBARD	1,490.2	1,320.5	12.8%
	LAKE	3,285.1	1,853.1	77.3%
	COOK	10,228.2	8,788.5	16.4%
	WABASHA	165.2	134.9	22.5%
	MILLE LACS	98.7	104.4	-5.4%
	AITKIN	1,381.6	1,282.9	7.7%
OKLAHOMA				
	CADDO	360.9	675.3	-46.6%
	PUSHMATAHA	1,156.7	1,165.5	-0.8%
	LE FLORE	5,252.6	4,815.3	9.1%
	MCCURTAIN	4,855.9	7,215.8	-32.7%
	CHEROKEE	6,522.9	9,682.5	-32.6%
LOUISIANA				
	ST. JAMES	34.5	12.0	187.5%
	ST. MARY	517.6	451.2	14.7%
	SABINE	566.8	387.2	46.4%
PENNSYLVANIA				
	JUNIATA	1,619.0	1,312.3	23.4%
	MIFFLIN	3,313.9	2,322.6	42.7%
MARYLAND				
	TALBOT	547.1	566.5	-3.4%
	CAROLINE	48.1	41.1	17.1%
SOUTH CAROLINA				
	OCONEE	433.8	318.7	36.1%
	GEORGETOWN	1,754.4	1,533.4	14.4%
TENNESSEE				
	LEWIS	271.2	415.3	-34.7%
	WAYNE	37.2	34.3	8.4%
	POLK	54.9	49.3	11.4%
	COCKE	182.1	156.5	16.4%
	CLAIRBORNE	185.4	136.8	35.5%
	STEWART	26.3	19.9	32.2%
TEXAS				
	CULBERSON	739.6	750.5	-1.5%
	JEFF DAVIS	508.5	382.5	33.0%
	PRESIDIO	479.3	413.6	15.9%
	VAL VERDE	3,842.6	3,585.7	7.2%
	NACOGDOCHES	616.9	647.8	-4.8%
	BLANCO	352.5	320.9	9.8%
	BURNET	1,069.0	1,138.9	-6.1%
T O T A L		47,656.4	43,059.2	10.7%

SOURCE: U.S. TRAVEL DATA CENTER

firms on the scenic byways under study and directly attributable to traveler spending are given in Table 5. Payroll income totalled almost $8.8 million in 1988. This is an increase of 10.5 percent from the 1986 traveler-generated payroll of over $7.9 million. The ratio of travel-generated spending to payroll will differ among counties given the different types and magnitude of the firms located within these areas.

One of the most important benefits of travel and tourism is the employment which this activity supports. Travel creates jobs for individuals within communities by attracting money from outside the community. Due to the diversity of spending on travel and tourism activities, a wide variety of jobs at every skill level is created. On the average, every $51.8 thousand spent by travelers on the scenic byways examined directly supported one job during 1988.

Table 6 reports the estimates for employment supported by traveler spending on scenic byways. During 1988, travel and tourism directly supported 920 jobs on the scenic byways included for study. This is a slight 0.6 percent increase over the 915 jobs supported in 1986. Similar to payroll income, variations among counties' spending to employment ratios are attributable to the labor or capital intensiveness of firms and the mix of travel-related businesses located in these different areas.

Another important economic benefit of travel and tourism is the tax revenue which it generates for state and local governments. These funds are used to improve the quality of life for state and local residents, but these funds are generated from out-of-state travelers and in-state travelers from outside the area where the scenic byway is located. Travel-generated state and local tax receipts are given in Tables 7 and 8, respectively.

Traveler-generated state and local tax receipts vary greatly among the scenic byways examined due to the different types of firms and the rates at which these firms are taxed by states and counties. On the average, each travel dollar produced almost 5 cents in state tax receipt and about 1 cent for local tax coffers. Travel-generated state tax receipts by these scenic byways are estimated to be $2.3 million, and local tax receipts are estimated at $479 thousand during 1988. State tax receipts from the scenic byways rose almost 24 percent from the 1986 figure of almost $1.9 million, and local tax receipts increased 10.7 percent over 1986 local tax receipts of $433 thousand.

Scenic roads and byways are designated as such and valued because of their unique aesthetic, cultural, or historical significance. However, travel and tourism on the scenic byways examined also make important economic contributions to the states and local areas where they are located. If the estimates of traveler-generated economic impacts of the scenic byways studied

T A B L E 5: TRAVEL GENERATED PAYROLL INCOME BY SCENIC BYWAYS

STATE	COUNTY	1988 ($ THOUSANDS)	1986 ($ THOUSANDS)	PERCENT CHANGE
VIRGINIA				
	FLOYD	300.7	236.7	27.0%
	PATRICK	104.6	97.6	7.1%
	FRANKLIN	137.1	115.2	19.0%
	BEDFORD	307.8	263.2	17.0%
	AMHERST	233.7	211.2	10.6%
	NELSON	1,928.2	1,615.3	19.4%
	MADISON	364.0	280.9	29.6%
	PAGE	2,072.3	1,783.3	16.2%
	RAPPAHANNOCK	244.6	186.6	31.1%
MINNESOTA				
	BECKER	167.5	138.1	21.3%
	WADENA	17.5	13.5	30.0%
	TODD	19.6	16.2	20.7%
	HUBBARD	273.2	242.0	12.9%
	LAKE	612.5	339.1	80.6%
	COOK	1,934.1	1,669.5	15.9%
	WABASHA	27.6	22.0	25.5%
	MILLE LACS	17.8	19.3	-7.7%
	AITKIN	229.1	203.2	12.8%
OKLAHOMA				
	CADDO	49.1	113.7	-56.8%
	PUSHMATAHA	197.8	205.0	-3.5%
	LE FLORE	925.9	865.2	7.0%
	MCCURTAIN	875.5	1,363.2	-35.8%
	CHEROKEE	1,196.9	1,840.8	-35.0%
LOUISIANA				
	ST. JAMES	13.0	0.8	1524.7%
	ST. MARY	75.0	74.5	0.7%
	SABINE	92.9	63.2	47.0%
PENNSYLVANIA				
	JUNIATA	314.0	252.6	24.3%
	MIFFLIN	645.8	446.6	44.6%
MARYLAND				
	TALBOT	106.7	112.6	-5.2%
	CAROLINE	6.1	5.3	15.3%
SOUTH CAROLINA				
	OCONEE	66.6	47.6	39.9%
	GEORGETOWN	328.9	294.2	11.8%
TENNESSEE				
	LEWIS	52.9	84.1	-37.1%
	WAYNE	5.7	5.5	4.4%
	POLK	10.2	9.3	9.7%
	COCKE	36.0	31.4	14.6%
	CLAIRBORNE	36.6	27.3	34.1%
	STEWART	4.3	3.1	38.3%
TEXAS				
	CULBERSON	142.9	142.4	0.4%
	JEFF DAVIS	85.8	62.4	37.5%
	PRESIDIO	86.1	73.0	18.0%
	VAL VERDE	701.6	642.4	9.2%
	NACOGDOCHES	112.0	118.1	-5.1%
	BLANCO	57.2	51.7	10.6%
	BURNET	189.8	203.2	-6.6%
T O T A L		8,776.5	7,944.5	10.5%

SOURCE: U.S. TRAVEL DATA CENTER

T A B L E 6: TRAVEL GENERATED EMPLOYMENT BY SCENIC BYWAYS

STATE	COUNTY	1988	1986	PERCENT CHANGE
VIRGINIA				
	FLOYD	26	21	21.8%
	PATRICK	9	9	-4.5%
	FRANKLIN	11	10	8.3%
	BEDFORD	29	28	4.0%
	AMHERST	25	25	1.0%
	NELSON	225	207	8.9%
	MADISON	38	32	19.5%
	PAGE	221	210	5.4%
	RAPPAHANNOCK	19	15	29.8%
MINNESOTA				
	BECKER	18	16	10.2%
	WADENA	2	1	60.8%
	TODD	2	2	-8.1%
	HUBBARD	30	29	2.7%
	LAKE	70	42	67.6%
	COOK	222	211	5.1%
	WABASHA	3	2	39.3%
	MILLE LACS	2	2	0.5%
	AITKIN	16	16	1.7%
OKLAHOMA				
	CADDO	5	14	-63.8%
	PUSHMATAHA	23	25	-8.6%
	LE FLORE	109	108	0.5%
	MCCURTAIN	105	172	-39.2%
	CHEROKEE	140	229	-38.8%
LOUISIANA				
	ST. JAMES	1	0	
	ST. MARY	7	7	5.8%
	SABINE	10	7	40.0%
PENNSYLVANIA				
	JUNIATA	35	31	13.9%
	MIFFLIN	73	55	32.6%
MARYLAND				
	TALBOT	10	12	-19.8%
	CAROLINE	0	0	
SOUTH CAROLINA				
	OCONEE	7	6	20.8%
	GEORGETOWN	40	38	4.1%
TENNESSEE				
	LEWIS	6	10	-44.1%
	WAYNE	1	1	-43.5%
	POLK	1	1	8.0%
	COCKE	4	4	-4.2%
	CLAIRBORNE	4	3	31.0%
	STEWART	0	0	
TEXAS				
	CULBERSON	14	16	-9.5%
	JEFF DAVIS	7	6	22.7%
	PRESIDIO	8	7	13.6%
	VAL VERDE	67	68	-1.4%
	NACOGDOCHES	11	13	-17.5%
	BLANCO	5	5	-7.7%
	BURNET	17	21	-16.7%
T O T A L		920	915	0.6%

SOURCE: U.S. TRAVEL DATA CENTER

T A B L E 7: TRAVEL GENERATED STATE GOVERNMENT TAX RECEIPTS BY SCENIC BYWAYS

STATE	COUNTY	1988 ($ THOUSANDS)	1986 ($ THOUSANDS)	PERCENT CHANGE
VIRGINIA				
	FLOYD	37.0	23.5	57.3%
	PATRICK	11.3	10.4	9.1%
	FRANKLIN	12.9	10.2	26.9%
	BEDFORD	42.1	32.8	28.3%
	AMHERST	41.5	33.1	25.5%
	NELSON	386.0	279.6	38.0%
	MADISON	61.4	40.8	50.6%
	PAGE	355.0	269.7	31.6%
	RAPPAHANNOCK	20.7	13.0	59.1%
MINNESOTA				
	BECKER	50.9	39.4	29.3%
	WADENA	4.6	3.2	44.5%
	TODD	4.9	3.8	28.9%
	HUBBARD	90.0	76.1	18.2%
	LAKE	224.7	111.8	101.0%
	COOK	689.1	562.9	22.4%
	WABASHA	8.6	6.5	33.0%
	MILLE LACS	6.5	6.8	-4.1%
	AITKIN	21.3	21.0	1.3%
OKLAHOMA				
	CADDO	13.1	23.6	-44.5%
	PUSHMATAHA	51.9	41.1	26.3%
	LE FLORE	249.3	176.7	41.1%
	MCCURTAIN	236.9	278.7	-15.0%
	CHEROKEE	302.8	361.1	-16.1%
LOUISIANA				
	ST. JAMES	0.8	0.4	89.1%
	ST. MARY	26.5	19.6	35.2%
	SABINE	31.1	19.2	62.2%
PENNSYLVANIA				
	JUNIATA	84.9	71.1	19.5%
	MIFFLIN	174.9	125.8	39.0%
MARYLAND				
	TALBOT	24.4	25.9	-5.7%
	CAROLINE	0.9	0.7	32.0%
SOUTH CAROLINA				
	OCONEE	18.0	12.0	50.3%
	GEORGETOWN	101.9	86.3	18.1%
TENNESSEE				
	LEWIS	15.7	24.6	-36.1%
	WAYNE	1.5	1.5	2.5%
	POLK	3.0	2.7	11.7%
	COCKE	10.6	9.1	16.5%
	CLAIRBORNE	11.0	8.0	37.6%
	STEWART	1.1	0.7	50.1%
TEXAS				
	CULBERSON	46.0	31.6	45.5%
	JEFF DAVIS	17.6	7.6	131.0%
	PRESIDIO	22.5	13.0	73.4%
	VAL VERDE	196.7	125.5	56.7%
	NACOGDOCHES	32.9	24.1	36.4%
	BLANCO	10.4	6.6	57.0%
	BURNET	47.0	36.2	29.8%
T O T A L		2,319.6	1,876.3	23.6%

SOURCE: U.S. TRAVEL DATA CENTER

T A B L E 8: TRAVEL GENERATED LOCAL GOVERNMENT TAX RECEIPTS BY SCENIC BYWAYS

STATE	COUNTY	1988 ($ THOUSANDS)	1986 ($ THOUSANDS)	PERCENT CHANGE
VIRGINIA				
	FLOYD	13.5	10.0	35.0%
	PATRICK	4.4	4.1	6.8%
	FRANKLIN	5.4	4.4	23.0%
	BEDFORD	16.2	16.2	-0.3%
	AMHERST	11.0	9.9	11.3%
	NELSON	113.1	92.6	22.2%
	MADISON	18.8	14.1	33.4%
	PAGE	109.7	93.2	17.7%
	RAPPAHANOCK	8.9	6.5	37.3%
MINNESOTA				
	BECKER	6.2	4.9	27.3%
	WADENA	0.7	0.5	31.3%
	TODD	0.7	0.6	21.0%
	HUBBARD	10.2	8.7	16.8%
	LAKE	22.8	12.1	88.4%
	COOK	79.0	59.8	32.2%
	WABASHA	1.0	0.8	28.1%
	MILLE LACS	0.7	0.7	-5.5%
	AITKIN	8.5	7.3	16.8%
OKLAHOMA				
	CADDO	6.3	13.3	-52.4%
	PUSHMATAHA	22.3	22.9	-2.4%
	LE FLORE	106.6	97.7	9.1%
	MCCURTAIN	100.4	152.4	-34.1%
	CHEROKEE	125.7	196.8	-36.1%
LOUISIANA				
	ST. JAMES	0.0	0.1	-100.0%
	ST. MARY	11.5	9.1	25.9%
	SABINE	5.3	3.6	47.8%
PENNSYLVANIA				
	JUNIATA	10.0	10.0	-0.2%
	MIFFLIN	20.6	14.4	42.8%
MARYLAND				
	TALBOT	6.0	4.1	45.3%
	CAROLINE	0.3	0.2	28.3%
SOUTH CAROLINA				
	OCONEE	2.7	1.8	47.8%
	GEORGETOWN	14.9	13.0	14.7%
TENNESSEE				
	LEWIS	5.1	7.9	-35.1%
	WAYNE	0.5	0.4	25.6%
	POLK	1.1	1.0	8.0%
	COCKE	4.4	3.3	34.6%
	CLAIRBORNE	4.0	2.9	36.4%
	STEWART	0.4	0.3	42.9%
TEXAS				
	CULBERSON	10.3	9.6	7.3%
	JEFF DAVIS	5.0	3.3	52.9%
	PRESIDIO	5.6	4.3	30.3%
	VAL VERDE	47.8	40.6	17.8%
	NACOGDOCHES	7.8	7.7	1.7%
	BLANCO	3.3	2.8	18.1%
	BURNET	12.3	12.3	-0.1%
T O T A L		479.3	432.9	10.7%

SOURCE: U.S. TRAVEL DATA CENTER

here are accurate and could be applied to the 34,624 miles of designated scenic byways in the 1990 national scenic byways study by FHwA, travel-generated spending would have been approximately $1 billion during 1988.

Five scenic byways were selected as cases for study in order to obtain more detailed information about the economic impacts of travel on scenic byways. These include the Blue Ridge Parkway (nine Virginia counties), the Natchez Trace Parkway (two Tennessee counties), U.S. Highway 322 (two Pennsylvania counties), State Road 404 (two Maryland counties), and State Road 11 (one South Carolina county). We attempted to study cases that were diverse by type of road and regional location. Unfortunately, data about the commercial establishments located on scenic byways were available from only three sources for three roads, and the Data Center conducted surveys of the establishments located on the Blue Ridge Parkway and S.R. 404.

Methodology

An inventory of travel-related commercial establishments located on the above scenic byways was conducted for the years 1988 and 1986. Commercial establishments include gasoline service stations, campgrounds, hotels/motels, eating and drinking places, and other retail establishments. Other retail generally include shops selling gifts and souvenirs, sport and recreational clothing and equipment, and other incidental items.

This inventory tells us the number and type of commercial establishments located on these scenic byways, but we do not know the size and sales of these establishments or the percentage of sales that are traveler-generated versus those that are from residents. However, travel-generated economic impacts can be estimated from the inventory data in conjunction with the results from the Travel Economic Impact Model.

Traveler-generated spending on scenic byways for each type of commercial establishment in each county can be estimated by the average traveler-generated spending per each type of commercial establishment in the appropriate county during 1988 and 1986. Specifically, travel-generated spending on gasoline and other purchases at gasoline stations on S.R. 404 in Caroline County, Maryland during 1988 is estimated by dividing the total traveler-generated spending in Caroline County at gasoline stations in 1988 by the number of gasoline stations located in the County during 1988 to derive an average per unit traveler-generated spending amount for one gasoline station. This per unit traveler-generated spending amount for a gasoline station is then multiplied by the number of gasoline stations found on S.R. 404 in Caroline County during 1988. This method is repeated for each of the different types of establishments (hotel/motel, eating and drinking places, etc.) found on S.R. 404 in Caroline County.

The above method is then applied for each of the establishment

types found on S.R. 404 located in adjoining Talbot County, Maryland. S.R. 404 travel-generated spending for each type of establishment in Talbot County is then totalled and added to the Caroline County total to estimate travel-generated spending for S.R. 404. Traveler-generated payroll income, employment, state and local tax receipts for each type of establishment by county are also estimated by the above method for each scenic byway. This method also uses the 1986 inventory data and the 1986 estimates from the Travel Economic Impact Model to derive the economic impact on scenic byways during 1986.

The accuracy of the estimates derived from this method will depend upon whether or not establishments located on these scenic byways have travel-generated sales which reflect the average for the counties where they are located. If traveler-generated sales are higher than the county average, then this procedure will underestimate the economic impacts, and visa-versa.

Inventory of Commercial Establishments

The results of the travel-related commercial establishment inventories of the five case scenic byways are given in Table 9 through Table 13. Commercial establishments located on the Blue Ridge Parkway in Virginia counties are listed on Table 9. No new travel-related business establishments have been added along the Blue Ridge Parkway since 1986. There are six gasoline stations, twelve eating and drinking places, three hotels/motels, eight campgrounds, and sixteen other retail establishments. These establishments are located along the Parkway in six of the nine counties. Also, fourteen of these establishments located in Page County are not private businesses but instead are operated by the National Park Service.

Table 10 lists the number and types of establishments located on U.S. 322 in the Counties of Mifflin and Juniata, Pennsylvania. In 1986, there were 29 travel-related establishments along U.S. 322, most of which were located in Mifflin County. Juniata County added two eating and drinking places, and a gasoline station was added in Mifflin County for a 1988 total along U.S. 322 of 32 travel-related business.

Maryland's S.R. 404 is a popular scenic route for traveling to the eastern shore points. As indicated in Table 10, there were 18 establishments during 1986 along S.R. 404 in Caroline and Talbot Counties, Maryland. This grew to 20 businesses by 1988 due to the addition of two eating and drinking places in Caroline County.

Commercial establishments located on S.R. 11 in Oconee County, South Carolina are given in Table 12. Twelve travel-related businesses were located along S.R. 11 during 1986. The number of establishments increased to fourteen with the addition of two gasoline stations and two eating and drinking places.

T A B L E 9: Establishments Located on Blue Ridge Parkway, Virginia Counties

	FLOYD		PATRICK	
	1988	1986	1988	1986
Gasoline stations	0	0	4	4
Eating/Drinking places	1	1	2	2
Hotel/Motels	0	0	2	2
Campgrounds	2	2	1	1
Other Retail	4	4	2	2

	FRANKLIN		BEDFORD	
	1988	1986	1988	1986
Gasoline stations	0	0	0	0
Eating/Drinking places	0	0	3	3
Hotel/Motels	0	0	1	1
Campgrounds	1	1	1	1
Other Retail	1	1	3	3

	AMHERST		NELSON	
	1988	1986	1988	1986
Gasoline stations	0	0	0	0
Eating/Drinking places	1	1	0	0
Hotel/Motels	0	0	0	0
Campgrounds	1	1	0	0
Other Retail	1	1	0	0

	MADISON		PAGE[1]	
	1988	1986	1988	1986
Gasoline stations	0	0	2	2
Eating/Drinking places	0	0	5	5
Hotel/Motels	0	0	0	0
Campgrounds	0	0	2	2
Other Retail	0	0	5	5

	RAPPAHANNOCK	
	1988	1986
Gasoline stations	0	0
Eating/Drinking places	0	0
Hotel/Motels	0	0
Campgrounds	0	0
Other Retail	0	0

1. NOTE: All establishments in Page County operated by National Park Service

SOURCE: U.S. Travel Data Center

T A B L E 10: Establishments Located on U.S. 322, Pennsylvania Counties

	MIFFLIN		JUNIATA	
	1988	1986	1988	1986
Gasoline stations	5	4	1	1
Eating/Drinking places	13	13	3	1
Hotel/Motels	5	5	1	0
Campgrounds	0	0	0	0
Other Retail	4	4	1	1

SOURCE: Mifflin County Industrial Development Corporation

T A B L E 11: ESTABLISHMENTS LOCATED ON S.R. 404, MARYLAND COUNTIES

	CAROLINE		TALBOT	
	1988	1986	1988	1986
Gasoline stations	4	4	2	2
Eating/Drinking places	8	6	0	0
Hotel/Motels	0	0	0	0
Campgrounds	0	0	0	0
Other Retail	5	5	1	1

SOURCE: U.S. TRAVEL DATA CENTER

T A B L E 12: Establishments Located on S.R. 11, South Carolina Counties

	OCONEE	
	1988	1986
Gasoline stations	5	3
Eating/Drinking places	7	5
Hotel/Motels	2	2
Campgrounds	2	2
Other Retail	0	0

SOURCE: Oconee County Planning and Development

The Natchez Trace Parkway is largely located in Mississippi, but data were only available for the Tennessee Counties of Lewis and Wayne. The same three travel-related firms have been along the Parkway during 1988 and 1986. These firms are all located in Wayne County.

Economic Impact

Traveler-generated spending estimates for the five scenic byway cases are given in Table 14. According to Table 14, U.S. 322 in Pennsylvania had the highest amount of traveler-generated spending in 1988 and 1986. U.S. 322 also had the highest amount of spending per mile during these years. In 1988, spending per highway mile on U.S. 322 was $169 thousand. The Natchez Trace Parkway and the Blue Ridge Parkway had the lowest estimates for traveler-generated spending. Spending per highway mile on the Natchez Trace Parkway was only $2.7 thousand, and spending per mile on the Blue Ridge Parkway was $9.3 thousand. On the average, spending per mile on these five roads was $34.6 thousand. If this estimate from only these five cases could be applied to the total 34,624 miles of designated scenic byways in the 1990 national scenic byways study by FHwA, travel-generated spending in 1988 would have totaled almost $1.2 billion.

The spending estimates derived for U.S. 322, S.R. 404, and S.R. 11 are higher than the spending estimates developed by the first method presented in the previous section. Alternately, the spending estimates for the Natchez Trace Parkway and especially the Blue Ridge Parkway are much lower than estimates provided earlier in Table 4. Spending on the Blue Ridge Parkway was estimated to be $30 million in Table 4 and under $2 million in Table 14. The difference between these two estimates is largely due to the difference between the two methods used to derive the estimates.

The method employed for deriving travel-generated economic impacts in Table 14 only estimates the impacts of those establishments actually located on a scenic byway. Economic impacts on U.S. Highways and State Roads may be due more to those establishments that are on the road, and there may not be many other establishments located off these kinds of roads. However, the Blue Ridge Parkway and the Natchez Trace Parkway have very few establishments on the Parkway, but there are many highways and other roads that intersect these Parkways that have more travel-related commercial establishments. Economic impacts of establishments located in the scenic corridor, vista, or on roads off of the scenic byway are not included in Table 14 and cannot be estimated from the data currently available. More extensive data collection will have to be performed if these kinds of estimates are to be developed.

Payroll income figures for the five cases are reported in Table 15. These generally correspond to the spending patterns in

T A B L E 13: Establishments Located on NATCHEZ TRACE PARKWAY, Tennessee Counties

	LEWIS		WAYNE	
	1988	1986	1988	1986
Gasoline stations	0	0	1	1
Eating/Drinking places	0	0	0	0
Hotel/Motels	0	0	0	0
Campgrounds	0	0	1	1
Other Retail	0	0	1	1

SOURCE: U.S. Department of Interior, National Park Service;
American Automobile Association

T A B L E 14: TRAVEL GENERATED EXPENDITURES BY SELECTED SCENIC BYWAY CASES

SCENIC BYWAY	1988 ($ THOUSANDS)	1986 ($ THOUSANDS)	PERCENT CHANGE
BLUE RIDGE PARKWAY, VIRGINIA	1,950.6	1,752.5	11.3%
U.S. 322, PENNSYLVANIA	6,595.1	5,694.9	15.8%
S.R. 404, MARYLAND	3,197.3	2,844.3	12.4%
S.R. 11, SOUTH CAROLINA	1,350.0	755.1	78.8%
NATCHEZ TRACE PARKWAY, TENNESSEE	138.0	131.0	5.3%
T O T A L	13,231.0	11,177.8	18.4%

NOTE: ESTIMATES FOR ESTABLISHMENTS LOCATED IN PAGE COUNTY, BLUE RIDGE PARKWAY ARE NOT INCLUDED
SOURCE: U.S. TRAVEL DATA CENTER

T A B L E 15: TRAVEL GENERATED PAYROLL INCOME BY SELECTED SCENIC BYWAY CASES

SCENIC BYWAY	1988 ($ THOUSANDS)	1986 ($ THOUSANDS)	PERCENT CHANGE
BLUE RIDGE PARKWAY, VIRGINIA	410.2	368.6	11.3%
U.S. 322, PENNSYLVANIA	1,443.2	1,222.0	18.1%
S.R. 404, MARYLAND	494.0	424.0	16.5%
S.R. 11, SOUTH CAROLINA	262.2	157.8	66.2%
NATCHEZ TRACE PARKWAY, TENNESSEE	12.5	11.0	13.6%
T O T A L	2,622.1	2,183.4	20.1%

NOTE: ESTIMATES FOR ESTABLISHMENTS LOCATED IN PAGE COUNTY, BLUE RIDGE PARKWAY ARE NOT INCLUDED
SOURCE: U.S. TRAVEL DATA CENTER

on all five scenic byways during 1988 over 1986 estimates. The most dramatic increase was on S.R. 11 which added two gasoline stations and two eating and drinking places after 1986 to a previously small base of only twelve commercial establishments. Increases found on S.R. 404 and U.S. 322 are also attributed to the addition of new establishments together with the increases in per unit sales and payroll for county commercial establishments in 1988 over 1986. The increases on Natchez Trace Parkway and Blue Ridge Parkway are due to the estimated increase of 1988 per unit sales over 1986 sales.

Estimates of the employment supported by traveler spending on these scenic byways are presented in Table 16. On the average, $43 thousand in traveler spending supported one job on these five scenic byways. The commercial activities on U.S. 322 supported the most jobs of the five scenic byways, and the addition of four new establishments to the small establishment base gave S.R. 11 the largest increase. Overall, it is estimated that 308 jobs were supported on these five scenic byways, and this is a ten percent increase over the 1986 estimate of 280 jobs.

Traveler-generated state and local tax receipts are reported in Tables 17 and Table 18, respectively. As noted in the previous section, state and local tax receipts vary greatly due to the types of firms and the rates at which these firms are taxed (or not taxed). On the average, each travel dollar produced about four cents in state tax receipts and less than one cent in local tax receipts. The estimates for state tax receipts seem reasonable given most states' reliance upon the gasoline excise tax, corporate income taxes, and sales taxes. Local tax receipts are much lower because many rural local governments do not tax eating and drinking places, gasoline, retail sales, campgrounds, and motels. However, recent trends indicate that more local governments are initiating new taxes on the sales of hotel and motel rooms.

Conclusion

Under the constraints of time and budget resources, two methodologies were employed with secondary data to develop estimates of the economic impacts of travel on scenic byways. Results from these two analyses estimate travel-generated spending to be between $30 thousand and $35 thousand per scenic byway mile during 1988. Applying these rough estimates to the total scenic byways would yield between $800 million and $900 million in traveler-generated spending during 1988. It is estimated that between $42 thousand to $52 thousand of this spending directly supports one job. Each travel dollar is estimated to produce four to five cents in state tax receipts, but less than one cent in local tax receipts.

The study of the economic impacts of travel on scenic byways is new, and there is not much data or other information about the

T A B L E 16: TRAVEL GENERATED EMPLOYMENT BY SELECTED SCENIC BYWAY CASES

SCENIC BYWAY	1988	1986	PERCENT CHANGE
BLUE RIDGE PARKWAY, VIRGINIA	51	46	10.6%
U.S. 322, PENNSYLVANIA	164	157	4.3%
S.R. 404, MARYLAND	59	54	7.7%
S.R. 11, SOUTH CAROLINA	33	21	60.4%
NATCHEZ TRACE PARKWAY, TENNESSEE	2	1	15.4%
T O T A L	308	280	10.2%

NOTE: ESTIMATES FOR ESTABLISHMENTS LOCATED IN PAGE COUNTY, BLUE RIDGE PARKWAY ARE NOT INCLUDED
SOURCE: U.S. TRAVEL DATA CENTER

T A B L E 17: TRAVEL GENERATED STATE GOVERNMENT TAX RECEIPTS BY SELECTED SCENIC BYWAY CASES

SCENIC BYWAY	1988 ($ THOUSANDS)	1986 ($ THOUSANDS)	PERCENT CHANGE
BLUE RIDGE PARKWAY, VIRGINIA	55.1	49.7	10.9%
U.S. 322, PENNSYLVANIA	321.1	260.7	23.2%
S.R. 404, MARYLAND	110.8	87.8	26.2%
S.R. 11, SOUTH CAROLINA	50.2	35.4	41.8%
NATCHEZ TRACE PARKWAY, TENNESSEE	2.0	2.0	0.0%
T O T A L	539.2	435.6	23.8%

NOTE: ESTIMATES FOR ESTABLISHMENTS LOCATED IN PAGE COUNTY, BLUE RIDGE PARKWAY ARE NOT INCLUDED
SOURCE: U.S. TRAVEL DATA CENTER

T A B L E 18: TRAVEL GENERATED LOCAL GOVERNMENT TAX RECEIPTS BY SELECTED SCENIC BYWAY CASES

SCENIC BYWAY	1988 ($ THOUSANDS)	1986 ($ THOUSANDS)	PERCENT CHANGE
BLUE RIDGE PARKWAY, VIRGINIA	0.0	0.0	0.0%
U.S. 322, PENNSYLVANIA	0.0	0.0	0.0%
S.R. 404, MARYLAND	0.0	0.0	0.0%
S.R. 11, SOUTH CAROLINA	9.4	4.6	104.3%
NATCHEZ TRACE PARKWAY, TENNESSEE	0.5	0.5	0.0%
T O T A L	9.9	5.1	94.1%

NOTE: ESTIMATES FOR ESTABLISHMENTS LOCATED IN PAGE COUNTY, BLUE RIDGE PARKWAY ARE NOT INCLUDED
ZERO EQUALS LESS THAN ONE-HUNDRED DOLLARS
SOURCE: U.S. TRAVEL DATA CENTER

subject available. This study only scratches the surface by providing some rough estimates of these economic impacts. Clearly, much more research needs to be accomplished in order to generate more accurate estimates, especially for the more urban scenic byways.

APPENDICES

TRAVEL ECONOMIC IMPACT MODEL

Introduction

The Travel Economic Impact Model (TEIM) was developed by the US Travel Data Center to provide annual estimates of the impact of the travel activity of U.S. residents on national, state and county economies in this country. It is a disaggregated model built upon estimates of 14 travel expenditure categories, their impact on 14 types of travel-related businesses at the retail level, and the resulting business receipts, employment, personal income, and tax receipts.

The TEIM has the capability of estimating the economic impact of various types of travel, such as business and vacation, by transport mode and type of accommodations used, and other trip and traveler characteristics. While the benchmark model estimates are primarily based on data gathered by the U.S. Bureau of the Census in 1977, it has been updated to provide estimates for succeeding years.

The TEIM has been used to develop estimates of 1977 and subsequent year travel expenditures and the effect of these expenditures on employment, payroll and tax revenue in each of the 50 states and the District of Columbia. The County Impact Component of the TEIM allows estimates of the economic impact of travel at the county and city level.

The estimates of economic impact contained herein were developed through a dBase III+ computer program designed by the staff of the US Travel Data Center and operated on Data Center's personal computers.

Definition of Terms

There is no commonly accepted definition of travel in use at this time. However, the industry appears to be converging on the concept that travel involves all activity related to trips to places outside the traveler's home area, or more specifically, places 50 miles or more away from home, except for commuting to and from work.[1] However, the principal data sources for measuring travel activity levels, the U.S. Census Bureau's 1972 and 1977 National Travel Surveys and economic censuses, used different definitions. Since these are the only comprehensive, large-sample survey sources of the travel activity in the U.S., the definitions of travel in these surveys are adopted for the purposes of this report.

For the purposes of the estimates herein, "travel" is defined as activities associated with all overnight trips away from, and day trips to places 100 miles or more away from the traveler's origin. This definition is largely coterminous with the 50 mile definition, but each definition excludes activity included by the other. The TEIM definition includes all overnight trips regardless of distance away from home, but excludes day trips to places 50 to 100 miles away from home. The 50 miles definition excludes overnight trips to places less than 50 miles away from home, but includes day trips of one-way distances 50 to 100 miles. Given these differences, it appears a priori that the total volume of expenditures associated with each definition is quite similar.

The word "tourism" is avoided in this report because of its vague meaning. Some define tourism as all travel away from home while others use the dictionary definition which limits tourism to personal or pleasure travel.

The "travel industry," as used herein, refers to the collection of 14 types of businesses that provide goods and services to the traveler or potential traveler at the retail level (see Appendix B: Glossary of Terms). These business types are defined by the Office of Management and Budget in its system of

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[1]See National Tourism Resources Review Commission, Destination U.S.A., Volume 2: Domestic Tourism, U.S. Government Printing Office, Washington, D.C., 1973, pp.4-5; Frechtling, Douglas C., "Proposed Standard Definitions and Classifications for Travel Research," Marketing Travel and Tourism, Seventh Annual Conference Proceedings, The Travel Research Association, Salt Lake City, 1976, pp. 59-73.

Standard Industrial Classifications (SIC).[2] In each case, the relevant SIC code is included.

A "travel expenditure" is assumed to take place whenever a traveler exchanges money for an activity considered part of his trip. Total travel expenditures are separated into 14 categories representing traveler purchases of goods and services at the retail level. Travel expenditures are allocated among states by simulating where the exchange of money for goods or services actually took place. By their nature, some travel expenditures are assumed to occur at the traveler's origin, some at his destination, and some enroute.

"Economic impact" is represented by measures of spending, employment, payroll, business receipts and tax revenues generated by traveler spending. "Payroll" includes all forms of compensation, such as salaries, wages, commissions, bonuses, vacation allowances, sick leave pay and the value of payments in kind paid during the year to all employees. Payroll is reported before deductions for social security, income tax insurance, union dues, etc. This definition follows that used by the U.S. Census Bureau in the 1977 Census of Service Industries.[3]

"Employment" represents the number of jobs generated by traveler spending, both full and part-time. As such, it is consistent with the U.S. Department of Labor series on nonagricultural payroll employment.[4] "Tax revenues" include corporate income, individual income, sales and gross receipts, and excise taxes by level of government.[5] "Business receipts" reflect travel expenditures less the sales and excise taxes imposed on those expenditures.

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[2]Office of Management and Budget, U.S. Executive Office of the President, Standard Industrial Classification Manual, 1972, U.S. Government Printing Office, Washington, D.C., 1973, 649 pp.

[3]U.S. Bureau of the Census, Census of Service Industries, 1977, Area Series, United States, U.S. Government Printing Office, Washington, D.C., 1979, p. A3.

[4]U.S. Department of Labor, Handbook of Labor Statistics, 1975, U.S. Government Printing Office, Washington, D.C., 1979, p. A3.

[5]Advisory Commission on Intergovernmental Relations, State-local Finances: Significant Features and Suggested legislation, 1972 U.S. Government Printing Office, Washington, D.C., 1972, passim, and later editions.

Description of the Model[6]

The basic data on travel activity levels (e.g., number of miles traveled by mode of transportation, the number of nights away from home spent by type of accommodation) are available from the 1977 National Travel Survey.[7] Through the TEIM's National Travel Expenditure Component (NTEC), the activity levels for trips to places within the United States are combined with the appropriate average costs of each unit of travel activity, (e.g., cost per mile by mode of transport, cost per night by type of accommodation), to produce estimates of the total amount spent on each of 14 categories of travel-related goods and services by state. For example, the number of nights spent by travel parties in commercial lodging in Maryland is multiplied by the average cost per night per travel party of staying in a commercial lodging facility in Maryland to obtain the estimate of traveler expenditures for hotel, motel and tourist court accommodations.

The expenditure data resulting from the NTEC cover only those trips to places 100 miles or more away from home, the basic trip definition used in the 1977 National Travel Survey (NTS). Consequently, these results understate U.S. travel expenditures on all overnight trips and day-trips of 100 miles for two reasons. First, only 100-mile trips are included in the 1977 NTS and the expenditure estimates based upon it. Second the 1977 NTS may have underestimated travel activity, with resulting expenditure estimates based upon it underestimated as well.

In order to correct for these potential sources of underestimation, the results of the NTEC for each state are calibrated using estimates provided by the U.S. Census Bureau's 1977 Census of Service Industries (CSI).[8] The NTEC estimates of traveler spending for commercial accommodations are compared to the CSI estimates of hotel/motel receipts from room rentals, and

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[6]For a detailed description of the TEIM, including equations and data sources, see Frechtling, Douglas C., et. al., Travel Economic Impact Model, Volume I: Final Economic Analysis Methodology, U.S. Travel Data Center, Washington, D.C., 1975. 108 pp.

[7]U.S. Bureau of the Census, 1977 Census of Transportation, National Travel Survey, U.S. Government Printing Office, Washington, D.C., 1979, 362 pp.

[8]U.S. Bureau of the Census, 1977 Census of Service Industries, Geographic Area Series, U.S. Government Printing Office, Washington, D.C., 1979.

the state travel expenditure estimates for each category are adjusted by the ratio of the CSI estimates of hotel/motel room rental receipts in a state to the NTEC estimates of travel spending on commercial accommodations in the state. The results are adjusted travel expenditures in each of the 14 categories for each state, which represent expenditures on overnight trips away from home, and day trips to places 100 miles or more away from home.

The Economic Impact Component of the TEIM estimates travel-generated business receipts, employment, and payroll. Basically, the 14 types of travel expenditures are associated with 14 different types of travel-related businesses. For example, traveler spending on commercial lodging in a state is related to the business receipts, employment and payroll of hotels, motels and motor hotels (SIC 701) in the state. It is assumed that travel spending in each category, less sales and excise taxes, equals business receipts for the related business type as defined by the U.S. Census Bureau.

It is assumed that each job in a specific type of business in a state is supported by some amount of business receipts and that each dollar of wages and salaries is similarly supported by some dollar volume of business receipts. The ratios of employment to business receipts are computed for each industry in each state. These ratios are then multiplied by the total amount of business receipts generated by traveler spending in a particular type of business to obtain the measures of travel-generated employment and payroll of each type of business in each state. For example, the ratio of employees to business receipts in Maryland commercial lodging establishments is multiplied by traveler-generated business receipts of these establishments to obtain traveler-generated employment in commercial lodging. A similar process is used for the payroll estimates.

The Fiscal Impact Component of the TEIM is used to estimate traveler-generated tax revenues of federal, state and local governments. The yield of each type of tax is related to the best measure of the relevant tax base available for each state consistent with the output of the Economic Impact Component. The ratios of yield to base for each type of tax in each state is then applied to the appropriate primary level output to obtain estimates of tax receipts generated by travel. For example, the ratio of Maryland State personal income tax collections to payroll in the state is applied to total travel-generated payroll to obtain the estimate of state personal income tax receipts attributable to traveler spending in Maryland.

The 1977 benchmark estimates of travel expenditures, and travel-generated employment, payroll and federal, state and local tax revenue, are updated for each successive year. Data from the U.S. Bureau of the Census, the Federal Aviation Administration, the Department of Transportation, Amtrak, the American Bus Association,

the Federal Highway Administration, state revenue departments, the Data Center's National Travel Survey and other sources are used for this purpose. These data indicate the change in travel spending for each of the expenditure categories for each state over the previous year, as well as changes in the relationship of travel spending to employment, payroll and tax revenue.

Limitations of the Study

This study is designed to indicate the impact of U.S. traveler expenditures on employment, payroll, business receipts and tax revenue in each of the states. These impact estimates reflect the limitations inherent in the definition of travel expenditures. Two important classes of travel-related expenses have not been estimated due to lack of sufficient data. Consumers purchase certain goods and services in anticipation of a trip away from home. These include sports equipment (tennis racquets, skis, scuba gear, etc.), travel books and guides, and services such as language lessons and lessons for participatory sports (tennis, skiing, underwater diving, etc.). Although the magnitude of these purchases in preparation for a trip cannot be quantified, it is probably significant relative to overall travel expenditures.

The second type of spending not covered due to lack of sound, relevant data is the purchase of major consumer durables generally related to outdoor recreation on trips. While recreational vehicles (campers, motor homes, trailers and mobile homes) are covered, spending for boats and boating supplies, and off-road recreational vehicles such as trail bikes, dune buggies and snowmobiles are not. Further research is required in this area to estimate the average spending on items such as these by travelers.

Certain states generate peculiar spending behavior relative to others. For example, traveler expenditures on gaming in Nevada comprise a substantial portion of tourist receipts, and contribute heavily to the state's economy. Data on such unusual spending is virtually unavailable, and thus these activities are not reflected in these estimates at this time.

Moreover, the TEIM records travel expenditures only for those states where travelers spent the night, originated, or were destined. Due to the nature of the Census Bureau's 1977 National Travel Survey, expenditures could not be allocated to states passed through in a single day. It is believed these expenditures may be quite significant to certain "bridge" states between major population concentrations and major destinations.

The trip definition inherent in this study also limits the estimates of economic impact somewhat. Specifically excluded are the economic effects of U.S. traveler expenditures in this country pursuant to traveling to a foreign destination. Also excluded is the impact of day-trips to places less than 100 miles from home.

While these latter trips may be quite numerous, intuitively, they appear to involve little economic impact since lodging expenditures and virtually all common carrier spending are excluded. Meal, entertainment and recreation expenditures on these trips also seem relatively insignificant.

These travel expenditures and impact estimates are based on household surveys of travel activity. Consequently, they are subject to all of the sampling and non-sampling errors inherent in sample surveys.

Most travel expenditure data collected is on a "type of purchase" rather than "point of purchase" basis. This means there is some incongruity in matching spending on different goods and services while traveling with the receipts, employment and payroll of different types of businesses. For example, all spending for meals is assumed to take place in eating and drinking places (SIC 58), whereas some may actually occur in hotels or other commercial lodging places (701). This inconsistency does not appear to introduce major errors in the calculations and can only be corrected upon collection of point-of-purchase expenditure data.

Automobile Transportation Expenditure. This category includes a prorate share of the fixed costs of owning an automobile, truck, camper, or other recreational vehicle, such as insurance, license fees, tax, and depreciation costs. Also included are the variable costs of operating an automobile, truck, camper, or other recreational vehicle on a trip, such as gasoline, oil, tires, and repairs. The costs of renting an automobile or other motor vehicle are included in this category as well.

Automobile Transportation Industry. Automotive dealers and gasoline service stations (SIC 55); automotive rental and leasing without drivers (751).

Entertainment/Recreation Expenditure. Traveler spending on recreation facility user fees, admissions at amusement parks and attractions, attendance at nightclubs, movies, legitimate shows, sports events, and other forms of entertainment and recreation while traveling.

Entertainment/Recreation Industry. Amusement and recreation services (SIC 79) and motion picture theaters (783).

Food Expenditure. Traveler spending in commercial eating facilities and grocery stores or carry-outs, as well as on food purchased for off-premise consumption.

Foodservice Industry. Eating and drinking places (SIC 58).

General Retail Trade Industry. This sector is defined to receive incidental purchases by travelers. It includes general merchandise group stores (SIC 53) and miscellaneous retail stores (59).

Incidental Purchase Expenditure. Traveler spending on retail trade purchases including gifts for others, medicine, cosmetics, clothing, personal services, souvenirs, and other items of this nature.

Incidental Purchase Industry. See "General Retail Trade Industry.

Lodging Industry. This industry includes hotels, motels, and motor hotels (SIC 701), camps and trailers parks (703), and general building contractors -- residential buildings (152) and operative builders (1531).

Public Transportation Expenditures. This includes traveler spending on air, bus, rail and boat/ship transportation, and taxicab or limousine service between airports and central cities. Also included are expenditures on "other transportation" as indicated in the 1977 National Travel Survey.

Public Transportation Industry. Air transportation (SIC 45), taxicab companies (412), intercity highway passenger transportation (413), National Railroad Passenger Corporation (Amtrak), and water transportation (44 except 4411). Also is the "dummy" industry of "other transportation."

Tourism. Generally avoided in this study, this can be used to refer to pleasure or personal travel, a subset of travel.

Travel. The act of taking a "trip" (gg.v).

Travel Arrangement Industry. This includes travel agencies, tour operators, and other services in arranging passenger transportation, and is covered under SIC 4722.

Traveler. Person taking a "trip" (gg.v).

Travel Expenditure. The exchange of money or the promise of money for goods or service while traveling, including any advance purchase of public transportation tickets, lodging or other items normally considered incidental to travel, but which may be purchased in advance of the trip. In addition, certain of the "fixed" or capital costs of owning a motor vehicle (including campers, motor homes, etc.) or a vacation or second home are included as associated with taking a trip. Generally, expenditures are assumed to take place at the point where the good or service is bought while traveling. The two exceptions to this rule are that the fixed costs of operating a motor vehicle while on a trip are allocated to the traveler's area of residence, and the "imputed rent" of spending nights in the traveler's own vacation home are allocated to the area visited.

Travel-generated Employment. The number of jobs attributable to travel expenditures in an area. These estimates of employment follow the "establishment payroll survey definition" rather than the "household survey definition." Consequently, the TEIM estimates are more closely related to the number of jobs than to the number of employees. For a detailed description of the household and establishment survey differences, see Green, Gloria P., "Comparing Employment Estimates from Household and Payroll Surveys," Monthly Labor Review, Volume 92, No. 12, December, 1969.

Travel-generated Payroll. This is the payroll, or wage and salary income, attributable to travel expenditures in an area. Payroll includes all forms of compensation, such as salaries, wages, commissions, bonuses, vacation allowances, sick leave pay, and the value of payments in kind (such as free meals and lodgings) paid during the year to all employees. Trips and gratuities received by employees from patrons and reported to employers are included. For corporations, it includes amounts paid to officers and executives; for unincorporated businesses, it does not include profit nor other compensation of proprietors or partners. Payroll is reported before deductions for social security, income tax, insurance, union dues, etc.

Travel-generated Tax Receipts. These federal, state and local tax revenues attributable to travel in an area. For a given state locality, all or some of the taxes may apply. "Local" includes county, city or municipality, and township units of government actually collecting the receipts, and not the level that may end up receiving it through intergovernmental transfers.

Federal. These receipts include corporate income taxes, individual income taxes, employment taxes, gasoline excise taxes, and, airline ticket taxes.

State. These receipts include corporate income taxes, individual income taxes, sales and gross receipts taxes, and excise taxes.

Local. These include county and city receipts from individual and corporate income taxes, sales, excise and gross receipts taxes, and property taxes.

Travel-generated Wage and Salary Income. The same as "travel-generated payroll."

Trip. A trip occurs, for the purpose of the model, every time one or more persons goes to a place 100 miles or more away from home in one day, or is out-of-town one or more nights, and returns to his origin. Specifically excluded from this definition are: (1) travel as part of an operating crew on a train, plane, bus, truck or ship; (2) commuting to a place of work; (3) student trips to school or those taken while in school. Also excluded is foreign travel activity in the U.S.

Visitor. This term is usually limited to special studies of individual cities or metropolitan areas. It includes those not residing in the area under study who travel away from home overnight or on a day trip of 200 round-trip miles or more and visit the area. As a general rule, total travel impact on an area less the impact of area residents equals visitor impact.

SOURCES OF DATA

This appendix presents the sources of data used in this report. Only the most current year is presented.

Organizations

Air Transport Association
American Automobile Association
Amtrak
American Society of Travel Agents
Bureau of Labor Statistics, U.S. Department of Labor
Federal Highway Administration
Mifflin County, Pennsylvania Industrial Development Corporation
National Park Service
Oconee County, South Carolina Planning and Development
Peterson, Howell & Heather, Inc.
Runzheimer International Ltd.

Publications, Reports, and Articles

1988 Annual Report, Internal Revenue Service, U.S. Government Printing Office, Washington, D.C., 1989

Airport Activity Statistics of Certificated Route Carriers, 1987, Federal Aviation Administration, U.S. Department of Transportation, U.S. Government Printing Office, Washington, D.C., 1988

Governmental Finances in 1986-87, U.S. Department of Commerce, Bureau of the Census, U.S. Government Printing Office, Washington, D.C., 1988

Highway Statistics, 1987, Federal Highway Administration, U.S. Department of Transportation, U.S. Government Printing Office, Washington, D.C., 1988

Monthly Energy Review, January 1989, Energy Information Administration, U.S. Department of Energy, U.S. Government Printing Office, Washington, D.C., 1989

Scenic Byways, July 1988, Federal Highway Administration, U.S. Department of Transportation, 1988

"State and Regional Unemployment in 1988", February 1989, U.S. Department of Labor, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., 1989

"Survey of Selling Costs, 1988" Sales & Marketing Management, February 20, 1989, Bill Communications Inc., New York, New York, 1989

Survey of Current Business, August 1988, Bureau of Economic Analysis, U.S. Department of Commerce, Bureau of the Census, U.S. Government Printing Office, Washington, D.C., 1988

State Government Tax Collections in 1987, U.S. Department of Commerce, Bureau of the Census, U.S. Government Printing Office, Washington, D.C., 1988

"The 1987 Travel Agency Market," Travel Weekly/ Louis Harris, July 1988, Murdoch Magazines, Secaucus, New Jersey, 07096

Transportation in America, Transportation Policy Associates, Sixth Edition, March 1988, Washington, D.C.

Worldwide Airport Traffic Report, 1988, Airport Operators Council International, Washington, D.C., 1989

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